

## **UEDGE Plasma Simulations with Monte Carlo Neutrals<sup>\*</sup>**

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We report on results from coupled UEDGE plasma and EIRENE Monte Carlo neutral models. A kinetic neutral particle model is attractive because it is straightforward to implement for complicated geometries and accurately models low-to-moderate collisional regimes that occur in most edge plasmas. A neutral fluid (Navier-Stokes) model is computationally faster and more naturally includes non-linear (neutral-neutral) interactions that are important in high-collisionality regimes. We previously reported favorable comparisons<sup>1</sup> of results from the EIRENE Monte Carlo model and the fluid neutral model in UEDGE, based on a simple rectangular slab geometry with a thermally attached plasma. Here we treat more realistic configurations, e.g., the DIII-D divertor<sup>2</sup>, that include gaps between the plasma and sidewalls. We plan to test the validity of the fluid model for thermally detached plasmas with strongly radiating impurities, which may occur in the ITER divertor.

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1. M. E. Rensink, et.al., Bull. Amer. Phys. Soc. **41** (1996) 1431.
2. A sample input file for EIRENE with DIII-D configuration data was provided by J. T. Hogan (ORNL).